

SEQUENCE LISTING

<110> BRAIN BIOTECHNOLOGY RESEARCH AND INFORMATION NETWORK AG
 Verseck,Stefan
 Osswald,Steffen
 Phong,Wai-Yee
 Liebeton,Klaus
 Eck,Jurgen

<120> Expression of nitrile hydratases in a two-vector expression system

<130> 009848-0356699

<140> 10/593,362
 <141> 2006-09-18

<150> PCT/EP2005/001688
 <151> 2005-02-18

<150> DE 10 2004 013 843.5
 <151> 2004-03-20

<160> 34

<170> PatentIn version 3.1

<210> 1
 <211> 624
 <212> DNA
 <213> Rhodococcus erythropolis

<220>
 <221> CDS
 <222> (1)..(624)

<400> 1
 atg tca gta acg atc gac cac aca acg gag aac gcc gca ccg gcc cag 48
 Met Ser Val Thr Ile Asp His Thr Thr Glu Asn Ala Ala Pro Ala Gln
 1 5 10 15
 gcg ccg gtc tcc gat cgc gcg tgg gcc ctg ttc cgc gca ctc gac ggt 96
 Ala Pro Val Ser Asp Arg Ala Trp Ala Leu Phe Arg Ala Leu Asp Gly
 20 25 30
 aag gga ttg gta ccc gac ggt tac gtc gag gga tgg aag aag acc ttc 144
 Lys Gly Leu Val Pro Asp Gly Tyr Val Glu Gly Trp Lys Lys Thr Phe
 35 40 45
 gag gag gac ttc agt cca agg cgc gga gcg gaa ttg gtc gcg cgg gcg 192
 Glu Glu Asp Phe Ser Pro Arg Arg Gly Ala Glu Leu Val Ala Arg Ala
 50 55 60
 tgg acc gac ccc gat ttc cgg caa ctg ctt ctc acc gac ggt acc gcc 240
 Trp Thr Asp Pro Asp Phe Arg Gln Leu Leu Leu Thr Asp Gly Thr Ala
 65 70 75 80
 gcg gtt gcc cag tac gga tat ctg ggc ccc cag ggc gaa tac atc gtg 288
 Ala Val Ala Gln Tyr Gly Tyr Leu Gly Pro Gln Gly Glu Tyr Ile Val
 85 90 95
 gca gtc gaa gac acc ccg acc ctc aag aac gtg atc gtg tgc tcg ctg 336
 Ala Val Glu Asp Thr Pro Thr Leu Lys Asn Val Ile Val Cys Ser Leu
 100 105 110
 tgt tca tgc acc gcg tgg ccc att ctc ggc ctg ccc cct acc tgg tac 384
 Cys Ser Cys Thr Ala Trp Pro Ile Leu Gly Leu Pro Pro Thr Trp Tyr
 115 120 125
 aag agt ttc gaa tac cgt gcg cga gtg gtg cgt gag cca cgg aag gtt 432
 Lys Ser Phe Glu Tyr Arg Ala Arg Val Val Arg Glu Pro Arg Lys Val
 130 135 140

ctc ttc gag atg gga acc gag atc gcg tcg gac gtc gag atc cgc gtc	480
Leu Phe Glu Met Gly Thr Glu Ile Ala Ser Asp Val Glu Ile Arg Val	
145 150 155 160	
tac gac acc acc gcc gaa act cgc tac atg gtt ctc ccg caa cgt ccc	528
Tyr Asp Thr Thr Ala Glu Thr Arg Tyr Met Val Leu Pro Gln Arg Pro	
165 170 175	
gca ggc acc gaa ggc tgg agc cag gaa cag ctt cag gag atc gtc acc	576
Ala Gly Thr Glu Gly Trp Ser Gln Glu Gln Leu Gln Glu Ile Val Thr	
180 185 190	
aag gac tgc ctg atc ggc gtc gca gtc ccg cag gtc ccc acc gtc tga	624
Lys Asp Cys Leu Ile Gly Val Ala Val Pro Gln Val Pro Thr Val	
195 200 205	

<210> 2
 <211> 207
 <212> PRT
 <213> Rhodococcus erythropolis

<400> 2

Met Ser Val Thr Ile Asp His Thr Thr Glu Asn Ala Ala Pro Ala Gln
1 5 10 15

Ala Pro Val Ser Asp Arg Ala Trp Ala Leu Phe Arg Ala Leu Asp Gly
20 25 30

Lys Gly Leu Val Pro Asp Gly Tyr Val Glu Gly Trp Lys Lys Thr Phe
35 40 45

Glu Glu Asp Phe Ser Pro Arg Arg Gly Ala Glu Leu Val Ala Arg Ala
50 55 60

Trp Thr Asp Pro Asp Phe Arg Gln Leu Leu Leu Thr Asp Gly Thr Ala
65 70 75 80

Ala Val Ala Gln Tyr Gly Tyr Leu Gly Pro Gln Gly Glu Tyr Ile Val
85 90 95

Ala Val Glu Asp Thr Pro Thr Leu Lys Asn Val Ile Val Cys Ser Leu
100 105 110

Cys Ser Cys Thr Ala Trp Pro Ile Leu Gly Leu Pro Pro Thr Trp Tyr
115 120 125

Lys Ser Phe Glu Tyr Arg Ala Arg Val Val Arg Glu Pro Arg Lys Val
130 135 140

Leu Phe Glu Met Gly Thr Glu Ile Ala Ser Asp Val Glu Ile Arg Val
145 150 155 160

Tyr Asp Thr Thr Ala Glu Thr Arg Tyr Met Val Leu Pro Gln Arg Pro
165 170 175

Ala Gly Thr Glu Gly Trp Ser Gln Glu Gln Leu Gln Glu Ile Val Thr
180 185 190

Lys Asp Cys Leu Ile Gly Val Ala Val Pro Gln Val Pro Thr Val
 195 200 205

<210> 3
 <211> 639
 <212> DNA
 <213> Rhodococcus erythropolis

<220>
 <221> CDS
 <222> (1)..(639)

<400> 3
 atg gat gga gta cac gat ctt gcc gga gtt caa ggc ttc ggc aaa gtc 48
 Met Asp Gly Val His Asp Leu Ala Gly Val Gln Gly Phe Gly Lys Val
 1 5 10 15
 ccg cat acc gtc aac gcc gac atc ggc ccc acc ttc cac gcc gag tgg 96
 Pro His Thr Val Asn Ala Asp Ile Gly Pro Thr Phe His Ala Glu Trp
 20 25 30
 gaa cac ctg ccg tac agc ctg atg ttc gcc ggt gtc gcc gaa ctc ggg 144
 Glu His Leu Pro Tyr Ser Leu Met Phe Ala Gly Val Ala Glu Leu Gly
 35 40 45
 gca ttc agc gtc gac gaa gtt cga tac gtc gtc gag cgg atg gaa cca 192
 Ala Phe Ser Val Asp Glu Val Arg Tyr Val Val Glu Arg Met Glu Pro
 50 55 60
 cgc cac tac atg atg acc ccg tac tac gag agg tac gtc atc ggc gtc 240
 Arg His Tyr Met Met Thr Pro Tyr Tyr Glu Arg Tyr Val Ile Gly Val
 65 70 75 80
 gcg aca ctg atg gtc gaa aag gga atc ctg acg cag gaa gaa ctc gaa 288
 Ala Thr Leu Met Val Glu Lys Gly Ile Leu Thr Gln Glu Glu Leu Glu
 85 90 95
 agc ctt gca ggg gga ccg ttc cca ctg tcg cgg ccc agc gaa tcc gaa 336
 Ser Leu Ala Gly Gly Pro Phe Pro Leu Ser Arg Pro Ser Glu Ser Glu
 100 105 110
 ggg cgg ccg gca ccc gtc gag acg acc acc ttc gaa atc ggt cag cga 384
 Gly Arg Pro Ala Pro Val Glu Thr Thr Thr Phe Glu Ile Gly Gln Arg
 115 120 125
 gta cgc gtg cgc gac gag tac gtt ccg ggg cat att cga atg cct gcg 432
 Val Arg Val Arg Asp Glu Tyr Val Pro Gly His Ile Arg Met Pro Ala
 130 135 140
 tac tgc cgc gga cga gtg gga acc atc tct cat cgg act acc gag aag 480
 Tyr Cys Arg Gly Arg Val Gly Thr Ile Ser His Arg Thr Thr Glu Lys
 145 150 155 160
 tgg ccg ttt ccc gac gca atc ggc cac ggg cgc aac gac gcc ggc gaa 528
 Trp Pro Phe Pro Asp Ala Ile Gly His Gly Arg Asn Asp Ala Gly Glu
 165 170 175
 gaa ccg acg tac cac gtg aag ttc gac gcc gag gaa ttg ttc ggt agc 576
 Glu Pro Thr Tyr His Val Lys Phe Asp Ala Glu Glu Leu Phe Gly Ser
 180 185 190
 gac acc gac ggc ggc agc gtc gta gtc gac ctt ttc gag ggt tac ctc 624
 Asp Thr Asp Gly Gly Ser Val Val Val Asp Leu Phe Glu Gly Tyr Leu
 195 200 205
 gag cct gcg gcc tga 639
 Glu Pro Ala Ala
 210

<210> 4
 <211> 212
 <212> PRT
 <213> Rhodococcus erythropolis

<400> 4

Met Asp Gly Val His Asp Leu Ala Gly Val Gln Gly Phe Gly Lys Val
 1 5 10 15

Pro His Thr Val Asn Ala Asp Ile Gly Pro Thr Phe His Ala Glu Trp
 20 25 30

Glu His Leu Pro Tyr Ser Leu Met Phe Ala Gly Val Ala Glu Leu Gly
 35 40 45

Ala Phe Ser Val Asp Glu Val Arg Tyr Val Val Glu Arg Met Glu Pro
 50 55 60

Arg His Tyr Met Met Thr Pro Tyr Tyr Glu Arg Tyr Val Ile Gly Val
 65 70 75 80

Ala Thr Leu Met Val Glu Lys Gly Ile Leu Thr Gln Glu Glu Leu Glu
 85 90 95

Ser Leu Ala Gly Gly Pro Phe Pro Leu Ser Arg Pro Ser Glu Ser Glu
 100 105 110

Gly Arg Pro Ala Pro Val Glu Thr Thr Thr Phe Glu Ile Gly Gln Arg
 115 120 125

Val Arg Val Arg Asp Glu Tyr Val Pro Gly His Ile Arg Met Pro Ala
 130 135 140

Tyr Cys Arg Gly Arg Val Gly Thr Ile Ser His Arg Thr Thr Glu Lys
 145 150 155 160

Trp Pro Phe Pro Asp Ala Ile Gly His Gly Arg Asn Asp Ala Gly Glu
 165 170 175

Glu Pro Thr Tyr His Val Lys Phe Asp Ala Glu Glu Leu Phe Gly Ser
 180 185 190

Asp Thr Asp Gly Gly Ser Val Val Val Asp Leu Phe Glu Gly Tyr Leu
 195 200 205

Glu Pro Ala Ala
 210

<210> 5
 <211> 624
 <212> DNA
 <213> *Rhodococcus erythropolis*

 <220>
 <221> CDS
 <222> (1)..(624)

 <400> 5

atg tca gta acg atc gac cac aca acg gag aac gcc gca ccg gcc cag	48
Met Ser Val Thr Ile Asp His Thr Thr Glu Asn Ala Ala Pro Ala Gln	
1 5 10 15	
gcg ccg gtc tcc gat cgc gcg tgg gcc ctg ttc cgc gca ctc gac ggt	96
Ala Pro Val Ser Asp Arg Ala Trp Ala Leu Phe Arg Ala Leu Asp Gly	
20 25 30	
aag gga ttg gta ccc gac ggt tac gtc gaa gga tgg aag aaa acc ttc	144
Lys Gly Leu Val Pro Asp Gly Tyr Val Glu Gly Trp Lys Lys Thr Phe	
35 40 45	
gag gag gac ttc agt cca agg cgc gga gcg gaa ttg gtc gcg cgg gcg	192
Glu Glu Asp Phe Ser Pro Arg Arg Gly Ala Glu Leu Val Ala Arg Ala	
50 55 60	
tgg acc gac ccc gag ttc cgg cag ttg ctt ctc acc gac ggt acc gcc	240
Trp Thr Asp Pro Glu Phe Arg Gln Leu Leu Leu Thr Asp Gly Thr Ala	
65 70 75 80	
gcg gtt gcc cag tac gga tac ctg ggc ccc cag ggc gag tac atc gtg	288
Ala Val Ala Gln Tyr Gly Tyr Leu Gly Pro Gln Gly Glu Tyr Ile Val	
85 90 95	
gca gtc gaa gac acc ccg acc ctc aag aac gtg atc gtg tgc tcg ctg	336
Ala Val Glu Asp Thr Pro Thr Leu Lys Asn Val Ile Val Cys Ser Leu	
100 105 110	
tgt tca tgc acc gcg tgg ccc att ctc ggc ctg ccc cct acc tgg tac	384
Cys Ser Cys Thr Ala Trp Pro Ile Leu Gly Leu Pro Pro Thr Trp Tyr	
115 120 125	
aag agt ttc gaa tac cgt gcg cga gtg gtg cgt gag cca cgg aag gtt	432
Lys Ser Phe Glu Tyr Arg Ala Arg Val Val Arg Glu Pro Arg Lys Val	
130 135 140	
ctc tcc gag atg gga acc gag atc gcg tcg gac gtc gag atc cgc gtc	480
Leu Ser Glu Met Gly Thr Glu Ile Ala Ser Asp Val Glu Ile Arg Val	
145 150 155 160	
tac gac acc acc gcc gaa act cgc tac atg gtt ctc ccg caa cgt ccc	528
Tyr Asp Thr Thr Ala Glu Thr Arg Tyr Met Val Leu Pro Gln Arg Pro	
165 170 175	
gca ggc acc gaa ggc tgg agc cag gaa caa ctg cag gaa atc gtc acc	576
Ala Gly Thr Glu Gly Trp Ser Gln Glu Gln Leu Gln Glu Ile Val Thr	
180 185 190	
aag gac tgc ctg atc ggc gtc gca gtc ccg cag gtc ccc acc gtc tga	624
Lys Asp Cys Leu Ile Gly Val Ala Val Pro Gln Val Pro Thr Val	
195 200 205	

<210> 6
 <211> 207
 <212> PRT
 <213> Rhodococcus erythropolis

<400> 6

```

Met Ser Val Thr Ile Asp His Thr Thr Glu Asn Ala Ala Pro Ala Gln
1          5          10          15

Ala Pro Val Ser Asp Arg Ala Trp Ala Leu Phe Arg Ala Leu Asp Gly
          20          25          30

Lys Gly Leu Val Pro Asp Gly Tyr Val Glu Gly Trp Lys Lys Thr Phe
          35          40          45

Glu Glu Asp Phe Ser Pro Arg Arg Gly Ala Glu Leu Val Ala Arg Ala
50          55          60

Trp Thr Asp Pro Glu Phe Arg Gln Leu Leu Leu Thr Asp Gly Thr Ala
65          70          75          80

Ala Val Ala Gln Tyr Gly Tyr Leu Gly Pro Gln Gly Glu Tyr Ile Val
          85          90          95

Ala Val Glu Asp Thr Pro Thr Leu Lys Asn Val Ile Val Cys Ser Leu
          100          105          110

Cys Ser Cys Thr Ala Trp Pro Ile Leu Gly Leu Pro Pro Thr Trp Tyr
          115          120          125

Lys Ser Phe Glu Tyr Arg Ala Arg Val Val Arg Glu Pro Arg Lys Val
          130          135          140

Leu Ser Glu Met Gly Thr Glu Ile Ala Ser Asp Val Glu Ile Arg Val
145          150          155          160

Tyr Asp Thr Thr Ala Glu Thr Arg Tyr Met Val Leu Pro Gln Arg Pro
          165          170          175

Ala Gly Thr Glu Gly Trp Ser Gln Glu Gln Leu Gln Glu Ile Val Thr
          180          185          190

Lys Asp Cys Leu Ile Gly Val Ala Val Pro Gln Val Pro Thr Val
          195          200          205

```

```

<210> 7
<211> 639
<212> DNA
<213> Rhodococcus erythropolis

<220>
<221> CDS
<222> (1)..(639)

<400> 7
atg gat gga gta cac gat ctt gcc gga gtt caa ggc ttc ggc aaa gtc      48
Met Asp Gly Val His Asp Leu Ala Gly Val Gln Gly Phe Gly Lys Val
1                               5                               10          15

ccg cat acc gtc aac gcc gac atc ggc ccc acc ttc cac gcc gag tgg      96
Pro His Thr Val Asn Ala Asp Ile Gly Pro Thr Phe His Ala Glu Trp
                20                               25          30

gaa cac ctg ccg tac agc ctg atg ttc gcc ggt gtc gcc gaa ctc ggg      144
Glu His Leu Pro Tyr Ser Leu Met Phe Ala Gly Val Ala Glu Leu Gly
                35                               40          45

gca ttc agc gtc gac gaa gtt cga tac gtc gtc gag cgg atg gaa cca      192
Ala Phe Ser Val Asp Glu Val Arg Tyr Val Val Glu Arg Met Glu Pro
                50                               55          60

cgc cac tac atg atg acc ccg tac tac gag agg tac gtc atc ggc gtc      240
Arg His Tyr Met Met Thr Pro Tyr Tyr Glu Arg Tyr Val Ile Gly Val
                65                               70          75          80

gcg aca ctg atg gtc gaa aag gga atc ctg acg cag gat gaa ctc gaa      288
Ala Thr Leu Met Val Glu Lys Gly Ile Leu Thr Gln Asp Glu Leu Glu
                85                               90          95

agc ctt gca ggg gga ccg ttc cca ctg tcg cgg ccc agc gaa tcc gaa      336
Ser Leu Ala Gly Gly Pro Phe Pro Leu Ser Arg Pro Ser Glu Ser Glu
                100                              105          110

ggg cgt ccg gca ccc gtc gag acg acc acc ttc gaa atc ggt cag cga      384
Gly Arg Pro Ala Pro Val Glu Thr Thr Thr Phe Glu Ile Gly Gln Arg
                115                              120          125

gta cgc gtg cgc gac gag tac gtt ccg ggg cat att cga atg cct gcg      432
Val Arg Val Arg Asp Glu Tyr Val Pro Gly His Ile Arg Met Pro Ala
                130                              135          140

tac tgc cgc gga cga gtg gga acc atc tct cat cgg act acc gag aag      480
Tyr Cys Arg Gly Arg Val Gly Thr Ile Ser His Arg Thr Thr Glu Lys
                145                              150          155          160

tgg cca ttt ccc gac gca atc ggc cac ggg cgc aac gac gcc ggc gaa      528
Trp Pro Phe Pro Asp Ala Ile Gly His Gly Arg Asn Asp Ala Gly Glu
                165                              170          175

gaa ccg acg tac cac gtg aag ttc gcc gcc gag gaa ttg ttc ggt agc      576
Glu Pro Thr Tyr His Val Lys Phe Ala Ala Glu Glu Leu Phe Gly Ser
                180                              185          190

gac acc gac ggc ggc agc gtc gta gtc gac ctt ttc gag ggt tac ctc      624
Asp Thr Asp Gly Gly Ser Val Val Val Asp Leu Phe Glu Gly Tyr Leu
                195                              200          205

gag cct gcg gcc tga
Glu Pro Ala Ala
                210

```

<210> 8
 <211> 212
 <212> PRT
 <213> Rhodococcus erythropolis

<400> 8

Met Asp Gly Val His Asp Leu Ala Gly Val Gln Gly Phe Gly Lys Val
 1 5 10 15
 Pro His Thr Val Asn Ala Asp Ile Gly Pro Thr Phe His Ala Glu Trp
 20 25 30
 Glu His Leu Pro Tyr Ser Leu Met Phe Ala Gly Val Ala Glu Leu Gly
 35 40 45
 Ala Phe Ser Val Asp Glu Val Arg Tyr Val Val Glu Arg Met Glu Pro
 50 55 60
 Arg His Tyr Met Met Thr Pro Tyr Tyr Glu Arg Tyr Val Ile Gly Val
 65 70 75 80
 Ala Thr Leu Met Val Glu Lys Gly Ile Leu Thr Gln Asp Glu Leu Glu
 85 90 95
 Ser Leu Ala Gly Gly Pro Phe Pro Leu Ser Arg Pro Ser Glu Ser Glu
 100 105 110
 Gly Arg Pro Ala Pro Val Glu Thr Thr Thr Phe Glu Ile Gly Gln Arg
 115 120 125
 Val Arg Val Arg Asp Glu Tyr Val Pro Gly His Ile Arg Met Pro Ala
 130 135 140
 Tyr Cys Arg Gly Arg Val Gly Thr Ile Ser His Arg Thr Thr Glu Lys
 145 150 155 160
 Trp Pro Phe Pro Asp Ala Ile Gly His Gly Arg Asn Asp Ala Gly Glu
 165 170 175
 Glu Pro Thr Tyr His Val Lys Phe Ala Ala Glu Glu Leu Phe Gly Ser
 180 185 190
 Asp Thr Asp Gly Gly Ser Val Val Val Asp Leu Phe Glu Gly Tyr Leu
 195 200 205
 Glu Pro Ala Ala
 210

<210> 9
 <211> 624
 <212> DNA
 <213> Rhodococcus erythropolis

<220>
 <221> CDS
 <222> (1)..(624)

```

<400> 9
atg tca gta acg atc gac cac aca acg gag aac gcc gca ccg gcc cag      48
Met Ser Val Thr Ile Asp His Thr Thr Glu Asn Ala Ala Pro Ala Gln
1                               5                               10          15

gcg ccg gtc tcc gac cgg gcg tgg gcc ctg ttc cgc gca ctc gac ggt      96
Ala Pro Val Ser Asp Arg Ala Trp Ala Leu Phe Arg Ala Leu Asp Gly
20                               25                               30

aag gga ttg gta ccc gac ggt tac gtc gag gga tgg aag aag acc ttc      144
Lys Gly Leu Val Pro Asp Gly Tyr Val Glu Gly Trp Lys Lys Thr Phe
35                               40                               45

gag gag gac ttc agt cca agg cgc gga gcg gaa ttg gtc gcg cgg gcg      192
Glu Glu Asp Phe Ser Pro Arg Arg Gly Ala Glu Leu Val Ala Arg Ala
50                               55                               60

tgg acc gac ccc gag ttc cgg cag ttg ctt ctc acc gac ggt acc gcc      240
Trp Thr Asp Pro Glu Phe Arg Gln Leu Leu Leu Thr Asp Gly Thr Ala
65                               70                               75          80

gcg gtt gcc cag tac gga tat ctg ggc ccc cag ggc gag tac atc gtg      288
Ala Val Ala Gln Tyr Gly Tyr Leu Gly Pro Gln Gly Glu Tyr Ile Val
85                               90                               95

gca gtc gaa gac acc ccg acc ctc aag aac gtg atc gtg tgc tcg ttg      336
Ala Val Glu Asp Thr Pro Thr Leu Lys Asn Val Ile Val Cys Ser Leu
100                              105                              110

tgt tca tgc acc gcg tgg ccc att ctc ggc ctg ccc cct acc tgg tac      384
Cys Ser Cys Thr Ala Trp Pro Ile Leu Gly Leu Pro Pro Thr Trp Tyr
115                              120                              125

aag agt ttc gaa tac cgt gcg cga gtg gtg cgt gag cca cgg aag gtt      432
Lys Ser Phe Glu Tyr Arg Ala Arg Val Val Arg Glu Pro Arg Lys Val
130                              135                              140

ctc tcc gag atg gga acc gag atc gcg tcg gac gtc gag atc cgc gtc      480
Leu Ser Glu Met Gly Thr Glu Ile Ala Ser Asp Val Glu Ile Arg Val
145                              150                              155          160

tac gac acc acc gcc gaa act cgc tac atg gtt ctc ccg caa cgt ccc      528
Tyr Asp Thr Thr Ala Glu Thr Arg Tyr Met Val Leu Pro Gln Arg Pro
165                              170                              175

gca ggc acc gaa ggc tgg agc cag gaa cag ctt caa gag atc gtc acc      576
Ala Gly Thr Glu Gly Trp Ser Gln Glu Gln Leu Gln Glu Ile Val Thr
180                              185                              190

aag gac tgc ctg atc ggc gtc gca gtc ccg cag gtc ccc acc gtc tga      624
Lys Asp Cys Leu Ile Gly Val Ala Val Pro Gln Val Pro Thr Val
195                              200                              205

```

<210> 10
 <211> 207
 <212> PRT
 <213> Rhodococcus erythropolis

<400> 10

Met Ser Val Thr Ile Asp His Thr Thr Glu Asn Ala Ala Pro Ala Gln
 1 5 10 15

Ala Pro Val Ser Asp Arg Ala Trp Ala Leu Phe Arg Ala Leu Asp Gly
 20 25 30

Lys Gly Leu Val Pro Asp Gly Tyr Val Glu Gly Trp Lys Lys Thr Phe
 35 40 45

Glu Glu Asp Phe Ser Pro Arg Arg Gly Ala Glu Leu Val Ala Arg Ala
 50 55 60

Trp Thr Asp Pro Glu Phe Arg Gln Leu Leu Leu Thr Asp Gly Thr Ala
 65 70 75 80

Ala Val Ala Gln Tyr Gly Tyr Leu Gly Pro Gln Gly Glu Tyr Ile Val
 85 90 95

Ala Val Glu Asp Thr Pro Thr Leu Lys Asn Val Ile Val Cys Ser Leu
 100 105 110

Cys Ser Cys Thr Ala Trp Pro Ile Leu Gly Leu Pro Pro Thr Trp Tyr
 115 120 125

Lys Ser Phe Glu Tyr Arg Ala Arg Val Val Arg Glu Pro Arg Lys Val
 130 135 140

Leu Ser Glu Met Gly Thr Glu Ile Ala Ser Asp Val Glu Ile Arg Val
 145 150 155 160

Tyr Asp Thr Thr Ala Glu Thr Arg Tyr Met Val Leu Pro Gln Arg Pro
 165 170 175

Ala Gly Thr Glu Gly Trp Ser Gln Glu Gln Leu Gln Glu Ile Val Thr
 180 185 190

Lys Asp Cys Leu Ile Gly Val Ala Val Pro Gln Val Pro Thr Val
 195 200 205

```

<210> 11
<211> 639
<212> DNA
<213> Rhodococcus erythropolis

<220>
<221> CDS
<222> (1)..(639)

<400> 11
atg gat gga gta cac gat ctt gcc gga gtt caa ggc ttc ggc aaa gtc      48
Met Asp Gly Val His Asp Leu Ala Gly Val Gln Gly Phe Gly Lys Val
1                               5                               10          15

ccg cat acc gtc aac gcc gac atc ggc ccc acc ttc cac gcc gag tgg      96
Pro His Thr Val Asn Ala Asp Ile Gly Pro Thr Phe His Ala Glu Trp
                               20                               25          30

gaa cac ctg ccg tac agc ctg atg ttc gcc ggt gtc gcc gaa ctc ggg      144
Glu His Leu Pro Tyr Ser Leu Met Phe Ala Gly Val Ala Glu Leu Gly
                               35                               40          45

gca ttc agc gtc gac gaa gtt cga tac gtc gtc gag cgg atg gaa cca      192
Ala Phe Ser Val Asp Glu Val Arg Tyr Val Val Glu Arg Met Glu Pro
                               50                               55          60

cgc cac tac atg atg acc ccg tac tac gag agg tac gtc atc ggc gtc      240
Arg His Tyr Met Met Thr Pro Tyr Tyr Glu Arg Tyr Val Ile Gly Val
65                               70                               75          80

gcg aca ctg atg gtc gaa aag gga atc ctg acg cag gaa gaa ctc gaa      288
Ala Thr Leu Met Val Glu Lys Gly Ile Leu Thr Gln Glu Glu Leu Glu
                               85                               90          95

agc ctt gca ggg gga ccg ttc cca ctg tcg cgg cca agc gaa tcc gaa      336
Ser Leu Ala Gly Gly Pro Phe Pro Leu Ser Arg Pro Ser Glu Ser Glu
                               100                              105          110

ggg cgt ccg gca ccc gtc gag acg acc acc ttc gaa gtc ggt cag cga      384
Gly Arg Pro Ala Pro Val Glu Thr Thr Thr Phe Glu Val Gly Gln Arg
                               115                              120          125

gta cgc gtg cgc gac gag tac gtt ccg ggg cat att cga atg cct gcg      432
Val Arg Val Arg Asp Glu Tyr Val Pro Gly His Ile Arg Met Pro Ala
130                              135                              140

tac tgc cgc gga cga gtg gga acc atc tct cat cgg act acc gag aag      480
Tyr Cys Arg Gly Arg Val Gly Thr Ile Ser His Arg Thr Thr Glu Lys
145                              150                              155          160

tgg cca ttt ccc gac gca atc ggc cac ggg cgc aac gac gcc ggc gaa      528
Trp Pro Phe Pro Asp Ala Ile Gly His Gly Arg Asn Asp Ala Gly Glu
                               165                              170          175

gaa ccg acg tac cac gtg aag ttc gac gcc gag gaa ttg ttc ggt agc      576
Glu Pro Thr Tyr His Val Lys Phe Asp Ala Glu Glu Leu Phe Gly Ser
                               180                              185          190

gac acc gac ggc ggc agc gtc gta gtc gac ctt ttc gag ggt tac ctc      624
Asp Thr Asp Gly Gly Ser Val Val Val Asp Leu Phe Glu Gly Tyr Leu
                               195                              200          205

gag cct gcg gcc tga
Glu Pro Ala Ala
210

```

<210> 12
 <211> 212
 <212> PRT
 <213> Rhodococcus erythropolis

<400> 12

Met Asp Gly Val His Asp Leu Ala Gly Val Gln Gly phe Gly Lys Val
 1 5 10 15

Pro His Thr Val Asn Ala Asp Ile Gly Pro Thr phe His Ala Glu Trp
 20 25 30

Glu His Leu Pro Tyr Ser Leu Met phe Ala Gly Val Ala Glu Leu Gly
 35 40 45

Ala phe Ser Val Asp Glu Val Arg Tyr Val Val Glu Arg Met Glu Pro
 50 55 60

Arg His Tyr Met Met Thr Pro Tyr Tyr Glu Arg Tyr Val Ile Gly Val
 65 70 75 80

Ala Thr Leu Met Val Glu Lys Gly Ile Leu Thr Gln Glu Glu Leu Glu
 85 90 95

Ser Leu Ala Gly Gly Pro phe Pro Leu Ser Arg Pro Ser Glu Ser Glu
 100 105 110

Gly Arg Pro Ala Pro Val Glu Thr Thr Thr phe Glu Val Gly Gln Arg
 115 120 125

Val Arg Val Arg Asp Glu Tyr Val Pro Gly His Ile Arg Met Pro Ala
 130 135 140

Tyr Cys Arg Gly Arg Val Gly Thr Ile Ser His Arg Thr Thr Glu Lys
 145 150 155 160

Trp Pro phe Pro Asp Ala Ile Gly His Gly Arg Asn Asp Ala Gly Glu
 165 170 175

Glu Pro Thr Tyr His Val Lys phe Asp Ala Glu Glu Leu phe Gly Ser
 180 185 190

Asp Thr Asp Gly Gly Ser Val Val Val Asp Leu phe Glu Gly Tyr Leu
 195 200 205

Glu pro Ala Ala
 210

<210> 13
 <211> 612
 <212> DNA
 <213> *Rhodococcus erythropolis*

 <220>
 <221> CDS
 <222> (1)..(612)

 <400> 13
 gtg agc gag cac gtc aat aag tac acg gag tac gag gca cgt acc aag 48
 Val Ser Glu His Val Asn Lys Tyr Thr Glu Tyr Glu Ala Arg Thr Lys
 1 5 10 15

 gca atc gaa act ttg ctg tac gag cga ggg ctc atc acg ccc gcc gcg 96
 Ala Ile Glu Thr Leu Leu Tyr Glu Arg Gly Leu Ile Thr Pro Ala Ala
 20 25 30

 gtc gac cga gtc gtt tcg tac tac gag aac gag atc ggc ccg atg ggc 144
 Val Asp Arg Val Val Ser Tyr Tyr Glu Asn Glu Ile Gly Pro Met Gly
 35 40 45

 ggt gcc aag gtc gtg gcg aag tcc tgg gtg gac cct gag tac cgc aag 192
 Gly Ala Lys Val Val Ala Lys Ser Trp Val Asp Pro Glu Tyr Arg Lys
 50 55 60

 tgg ctc gaa gag gac gcg acg gcc gcg atg gcg tca ttg ggc tat gcc 240
 Trp Leu Glu Glu Asp Ala Thr Ala Ala Met Ala Ser Leu Gly Tyr Ala
 65 70 75 80

 ggt gag cag gca cac caa att tcg gcg gtc ttc aac gac tcc caa acg 288
 Gly Glu Gln Ala His Gln Ile Ser Ala Val Phe Asn Asp Ser Gln Thr
 85 90 95

 cat cac gtg gtg gtg tgc act ctg tgt tcg tgc tat ccg tgg ccg gtg 336
 His His Val Val Val Cys Thr Leu Cys Ser Cys Tyr Pro Trp Pro Val
 100 105 110

 ctt ggt ctc ccg ccc gcc tgg tac aag agc atg gag tac ccg tcc cga 384
 Leu Gly Leu Pro Pro Ala Trp Tyr Lys Ser Met Glu Tyr Arg Ser Arg
 115 120 125

 gtg gta gcg gac cct cgt gga gtg ctc aag cgc gat ttc ggt ttc gac 432
 Val Val Ala Asp Pro Arg Gly Val Leu Lys Arg Asp Phe Gly Phe Asp
 130 135 140

 atc ccc gat gag gtg gag gtc agg gtt tgg gac agc agc tcc gaa atc 480
 Ile Pro Asp Glu Val Glu Val Arg Val Trp Asp Ser Ser Ser Glu Ile
 145 150 155 160

 cgc tac atc gtc atc ccg gaa cgg ccg gcc ggc acc gac ggt tgg tcc 528
 Arg Tyr Ile Val Ile Pro Glu Arg Pro Ala Gly Thr Asp Gly Trp Ser
 165 170 175

 gag gac gag ctg gcg aag ctg gtg agt cgg gac tcg atg atc ggt gtc 576
 Glu Asp Glu Leu Ala Lys Leu Val Ser Arg Asp Ser Met Ile Gly Val
 180 185 190

 agt aat gcg ctc aca ccc cag gaa gtg atc gta tga 612
 Ser Asn Ala Leu Thr Pro Gln Glu Val Ile Val
 195 200

<210> 14
 <211> 203
 <212> PRT
 <213> Rhodococcus erythropolis

<400> 14

Val Ser Glu His Val Asn Lys Tyr Thr Glu Tyr Glu Ala Arg Thr Lys
 1 5 10 15

Ala Ile Glu Thr Leu Leu Tyr Glu Arg Gly Leu Ile Thr Pro Ala Ala
 20 25 30

Val Asp Arg Val Val Ser Tyr Tyr Glu Asn Glu Ile Gly Pro Met Gly
 35 40 45

Gly Ala Lys Val Val Ala Lys Ser Trp Val Asp Pro Glu Tyr Arg Lys
 50 55 60

Trp Leu Glu Glu Asp Ala Thr Ala Ala Met Ala Ser Leu Gly Tyr Ala
 65 70 75 80

Gly Glu Gln Ala His Gln Ile Ser Ala Val Phe Asn Asp Ser Gln Thr
 85 90 95

His His Val Val Val Cys Thr Leu Cys Ser Cys Tyr Pro Trp Pro Val
 100 105 110

Leu Gly Leu Pro Pro Ala Trp Tyr Lys Ser Met Glu Tyr Arg Ser Arg
 115 120 125

Val Val Ala Asp Pro Arg Gly Val Leu Lys Arg Asp Phe Gly Phe Asp
 130 135 140

Ile Pro Asp Glu Val Glu Val Arg Val Trp Asp Ser Ser Ser Glu Ile
 145 150 155 160

Arg Tyr Ile Val Ile Pro Glu Arg Pro Ala Gly Thr Asp Gly Trp Ser
 165 170 175

Glu Asp Glu Leu Ala Lys Leu Val Ser Arg Asp Ser Met Ile Gly Val
 180 185 190

Ser Asn Ala Leu Thr Pro Gln Glu Val Ile Val
 195 200

<210> 15
 <211> 690
 <212> DNA
 <213> Rhodococcus erythropolis

<220>
 <221> CDS
 <222> (1)..(690)

<400> 15
 atg gat ggt atc cac gac aca ggc ggc atg acc gga tac gga ccg gtc 48
 Met Asp Gly Ile His Asp Thr Gly Gly Met Thr Gly Tyr Gly Pro Val
 1 5 10 15
 ccc tat cag aag gac gag ccc ttc ttc cac tac gag tgg gag ggt cgg 96
 Pro Tyr Gln Lys Asp Glu Pro Phe Phe His Tyr Glu Trp Glu Gly Arg
 20 25 30
 acc ctg tcg att ctg acc tgg atg cat ctc aag ggc atg tcg tgg tgg 144
 Thr Leu Ser Ile Leu Thr Trp Met His Leu Lys Gly Met Ser Trp Trp
 35 40 45
 gac aag tcg cgg ttc ttc cgg gag tcg atg ggg aac gaa aac tac gtc 192
 Asp Lys Ser Arg Phe Phe Arg Glu Ser Met Gly Asn Glu Asn Tyr Val
 50 55 60
 aac gag att cgc aac tcg tac tac acc cac tgg ctg agt gcg gca gaa 240
 Asn Glu Ile Arg Asn Ser Tyr Tyr Thr His Trp Leu Ser Ala Ala Glu
 65 70 75 80
 cgt atc ctc gtc gcc gac aag atc atc acc gaa gaa gag cga aag cac 288
 Arg Ile Leu Val Ala Asp Lys Ile Ile Thr Glu Glu Glu Arg Lys His
 85 90 95
 cgt gtg cag gag atc ctc gag ggt cgg tac acg gac agg aac ccg tcg 336
 Arg Val Gln Glu Ile Leu Glu Gly Arg Tyr Thr Asp Arg Asn Pro Ser
 100 105 110
 cgg aag ttc gat ccg gcc gag atc gag aag gcg atc gaa cgg ctt cac 384
 Arg Lys Phe Asp Pro Ala Glu Ile Glu Lys Ala Ile Glu Arg Leu His
 115 120 125
 gag ccc cac tcc cta gca ctt cca gga gcg gag ccg agt ttc tcc ctc 432
 Glu Pro His Ser Leu Ala Leu Pro Gly Ala Glu Pro Ser Phe Ser Leu
 130 135 140
 ggt gac aag gtc aaa gtg aag aat atg aac ccg ctg gga cac aca cgg 480
 Gly Asp Lys Val Lys Val Lys Asn Met Asn Pro Leu Gly His Thr Arg
 145 150 155 160
 tgc ccg aaa tat gtg cgg aac aag atc ggg gaa atc gtc acc tcc cac 528
 Cys Pro Lys Tyr Val Arg Asn Lys Ile Gly Glu Ile Val Thr Ser His
 165 170 175
 ggc tgc cag atc tat ccc gag agc agc tcc gcc ggc ctc ggc gac gat 576
 Gly Cys Gln Ile Tyr Pro Glu Ser Ser Ser Ala Gly Leu Gly Asp Asp
 180 185 190
 ccc cgc ccg ctc tac acg gtc gcg ttt tcc gcc cag gaa ctg tgg ggc 624
 Pro Arg Pro Leu Tyr Thr Val Ala Phe Ser Ala Gln Glu Leu Trp Gly
 195 200 205
 gac gac gga aac ggg aaa gac gta gtg tgc gtc gat ctc tgg gaa ccg 672
 Asp Asp Gly Asn Gly Lys Asp Val Val Cys Val Asp Leu Trp Glu Pro
 210 215 220
 tac ctg atc tct gcg tga 690
 Tyr Leu Ile Ser Ala
 225

<210> 16
 <211> 229
 <212> PRT
 <213> Rhodococcus erythropolis
 <400> 16
 Met Asp Gly Ile His Asp Thr Gly Gly Met Thr Gly Tyr Gly Pro Val
 1 5 10 15
 Pro Tyr Gln Lys Asp Glu Pro Phe Phe His Tyr Glu Trp Glu Gly Arg
 20 25 30
 Thr Leu Ser Ile Leu Thr Trp Met His Leu Lys Gly Met Ser Trp Trp
 35 40 45
 Asp Lys Ser Arg Phe Phe Arg Glu Ser Met Gly Asn Glu Asn Tyr Val
 50 55 60
 Asn Glu Ile Arg Asn Ser Tyr Tyr Thr His Trp Leu Ser Ala Ala Glu
 65 70 75 80
 Arg Ile Leu Val Ala Asp Lys Ile Ile Thr Glu Glu Glu Arg Lys His
 85 90 95
 Arg Val Gln Glu Ile Leu Glu Gly Arg Tyr Thr Asp Arg Asn Pro Ser
 100 105 110
 Arg Lys Phe Asp Pro Ala Glu Ile Glu Lys Ala Ile Glu Arg Leu His
 115 120 125
 Glu Pro His Ser Leu Ala Leu Pro Gly Ala Glu Pro Ser Phe Ser Leu
 130 135 140
 Gly Asp Lys Val Lys Val Lys Asn Met Asn Pro Leu Gly His Thr Arg
 145 150 155 160
 Cys Pro Lys Tyr Val Arg Asn Lys Ile Gly Glu Ile Val Thr Ser His
 165 170 175
 Gly Cys Gln Ile Tyr Pro Glu Ser Ser Ser Ala Gly Leu Gly Asp Asp
 180 185 190
 Pro Arg Pro Leu Tyr Thr Val Ala Phe Ser Ala Gln Glu Leu Trp Gly
 195 200 205
 Asp Asp Gly Asn Gly Lys Asp Val Val Cys Val Asp Leu Trp Glu Pro
 210 215 220
 Tyr Leu Ile Ser Ala
 225

<210>	17	
<211>	22	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	17	
	gccccgataa gaaaaggtga ac	22
<210>	18	
<211>	21	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	18	
	gcatgccttc aaatcagcct g	21
<210>	19	
<211>	24	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	19	
	agggtgaacc atatgtcagt aacg	24
<210>	20	
<211>	22	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	20	
	tgtcggatcc atcagacggt gg	22
<210>	21	
<211>	23	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	21	
	agcaccatat ggatggagta cac	23
<210>	22	
<211>	21	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	22	
	gttggaatt caggccgag g	21

<210>	23	
<211>	27	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	23	
	cgcggatcca agaaggagat atacatg	27
<210>	24	
<211>	22	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	24	
	ccgcaacggtt caaacggtct gg	22
<210>	25	
<211>	27	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	25	
	aggaatacgc atatgagcga gcacgtc	27
<210>	26	
<211>	30	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	26	
	gtgtggatcc actcatacga tcacttcctg	30
<210>	27	
<211>	31	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	27	
	aggaatgagc atatggatgg tatccacgac a	31
<210>	28	
<211>	33	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Primer	
<400>	28	
	atcgggatcc tttcacgcag agatcaggta cgg	33

<210> 29
 <211> 35
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 29
 ctcaggatcc aaggagtgat cgtatgagtg aagac 35

 <210> 30
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 30
 acaggagctc tcagtcgatg atggcc 26

 <210> 31
 <211> 315
 <212> DNA
 <213> Rhodococcus erythropolis

 <220>
 <221> CDS
 <222> (1)..(315)

 <400> 31
 atg agt gaa gac aca ctc act gat cgg ctc ccg gcg act ggg acc gcc 48
 Met Ser Glu Asp Thr Leu Thr Asp Arg Leu Pro Ala Thr Gly Thr Ala
 1 5 10 15

 gca ccg ccc cgc gac aat ggc gag ctt gta ttc acc gag cct tgg gaa 96
 Ala Pro Pro Arg Asp Asn Gly Glu Leu Val Phe Thr Glu Pro Trp Glu
 20 25 30

 gca acg gca ttc ggg gtc gcc atc gcg ctt tcg gat cag aag tcg tac 144
 Ala Thr Ala Phe Gly Val Ala Ile Ala Leu Ser Asp Gln Lys Ser Tyr
 35 40 45

 gaa tgg gag ttc ttc cga cag cgt ctc att cac tcc atc gct gag gcc 192
 Glu Trp Glu Phe Phe Arg Gln Arg Leu Ile His Ser Ile Ala Glu Ala
 50 55 60

 aac ggt tgc gag gca tac tac gag agc tgg aca aag gcg ctc gag gcc 240
 Asn Gly Cys Glu Ala Tyr Tyr Glu Ser Trp Thr Lys Ala Leu Glu Ala
 65 70 75 80

 agc gtg gtc gac tcg ggg ctg atc agc gaa gat gag atc cgc gag cgc 288
 Ser Val Val Asp Ser Gly Leu Ile Ser Glu Asp Glu Ile Arg Glu Arg
 85 90 95

 atg gaa tcg atg gcc atc atc gac tga 315
 Met Glu Ser Met Ala Ile Ile Asp
 100

<210> 32
 <211> 104
 <212> PRT
 <213> Rhodococcus erythropolis

 <400> 32
 Met Ser Glu Asp Thr Leu Thr Asp Arg Leu Pro Ala Thr Gly Thr Ala
 1 5 10 15

 Ala Pro Pro Arg Asp Asn Gly Glu Leu Val Phe Thr Glu Pro Trp Glu
 20 25 30

 Ala Thr Ala Phe Gly Val Ala Ile Ala Leu Ser Asp Gln Lys Ser Tyr
 35 40 45

 Glu Trp Glu Phe Phe Arg Gln Arg Leu Ile His Ser Ile Ala Glu Ala
 50 55 60

 Asn Gly Cys Glu Ala Tyr Tyr Glu Ser Trp Thr Lys Ala Leu Glu Ala
 65 70 75 80

 Ser Val Val Asp Ser Gly Leu Ile Ser Glu Asp Glu Ile Arg Glu Arg
 85 90 95

 Met Glu Ser Met Ala Ile Ile Asp
 100

<210> 33
 <211> 1200
 <212> DNA
 <213> Rhodococcus erythropolis

 <220>
 <221> CDS
 <222> (1)..(1200)

 <400> 33
 atg gtc gac aca cga ctt ccg gtc acg gtg ctg tca ggt ttc ctg ggc 48
 Met Val Asp Thr Arg Leu Pro Val Thr Val Leu Ser Gly Phe Leu Gly
 1 5 10 15

 gcc ggg aag acg aca cta ctc aac gag atc ctg cga aat cga gag ggt 96
 Ala Gly Lys Thr Thr Leu Leu Asn Glu Ile Leu Arg Asn Arg Glu Gly
 20 25 30

 cgg cgg gtc gcg gtg atc gtc aac gac atg agc gaa atc aac atc gac 144
 Arg Arg Val Ala Val Ile Val Asn Asp Met Ser Glu Ile Asn Ile Asp
 35 40 45

 agt gca gaa gtc gag cgt gag atc tcg ctc agt cgc tcc gag gag aaa 192
 Ser Ala Glu Val Glu Arg Glu Ile Ser Leu Ser Arg Ser Glu Glu Lys
 50 55 60

 ctg gtc gag atg acc aac ggc tgc atc tgc tgc act ctg cga gag gat 240
 Leu Val Glu Met Thr Asn Gly Cys Ile Cys Cys Thr Leu Arg Glu Asp
 65 70 75 80

 ctt ctt tcc gag atc agc gcc ttg gcc gcc gat ggc cga ttc gac tac 288
 Leu Leu Ser Glu Ile Ser Ala Leu Ala Ala Asp Gly Arg Phe Asp Tyr
 85 90 95

cta Leu	ctc Leu	atc Ile	gaa Glu 100	tct Ser	tcg Ser	ggc Gly	atc Ile	tcc Ser 105	gaa Glu	ccg Pro	ctt Leu	ccc Pro	gtc Val 110	gca Ala	gag Glu	336
acg Thr	ttc Phe	aca Thr 115	ttc Phe	atc Ile	gat Asp	acc Thr	gac Asp 120	ggc Gly	cac His	gcc Ala	ctc Leu	gcc Ala 125	gac Asp	gtc Val	gcc Ala	384
cga Arg	ctc Leu 130	gac Asp	acc Thr	atg Met	gtc Val	acc Thr 135	gtc Val	gtc Val	gac Asp	ggc Gly	cac His 140	agt Ser	ttt Phe	ctg Leu	cgc Arg	432
gac Asp 145	tac Tyr	acg Thr	gct Ala	ggg Gly	ggc Gly 150	cgc Arg	gtc Val	gaa Glu	gcc Ala	gat Asp 155	gcc Ala	ccg Pro	gaa Glu	gac Asp	gaa Glu 160	480
cga Arg	gac Asp	atc Ile	gcg Ala	gat Asp 165	ctg Leu	ctt Leu	gtc Val	gat Asp 170	cag Gln	atc Ile	gaa Glu	ttt Phe	gcc Ala	gac Asp 175	gtc Val	528
atc Ile	ctg Leu	gtg Val	agc Ser 180	aag Lys	gcc Ala	gat Asp	ctc Leu	gtc Val 185	tcg Ser	cac His	cag Gln	cac His	ctg Leu 190	gtc Val	gaa Glu	576
ttg Leu	acc Thr	gca Ala 195	gtc Val	ctg Leu	cgc Arg	tct Ser	ttg Leu 200	aac Asn	gca Ala	tcc Ser	gct Ala	gcg Ala 205	ata Ile	gtt Val	ccg Pro	624
atg Met	acg Thr 210	ctc Leu	ggt Gly	cgc Arg	atc Ile	cca Pro 215	ctc Leu	gac Asp	acg Thr	att Ile	ctc Leu 220	gac Asp	acc Thr	ggt Gly	ttg Leu	672
ttc Phe 225	tcg Ser	ctc Leu	gaa Glu	aag Lys	gct Ala 230	gca Ala	cag Gln	gcc Ala	ccc Pro	gga Gly 235	tgg Trp	tta Leu	caa Gln	gaa Glu	ctc Leu 240	720
caa Gln	ggt Gly	gaa Glu	cac His	atc Ile 245	ccc Pro	gaa Glu	acc Thr	gaa Glu	gag Glu 250	tac Tyr	gga Gly	atc Ile	agt Ser	tcg Ser 255	gtg Val	768
gtg Val	tac Tyr	cgc Arg	gag Glu 260	cgc Arg	gca Ala	ccc Pro	ttc Phe	cac His 265	ccc Pro	caa Gln	cgg Arg	ctg Leu	cat His 270	gat Asp	ttc Phe	816
ctc Leu	agc Ser	agc Ser 275	gag Glu	tgg Trp	acc Thr	aac Asn	gga Gly 280	aag Lys	tta Leu	ctt Leu	cgg Arg	gcc Ala 285	aag Lys	ggc Gly	tac Tyr	864
tac Tyr	tgg Trp 290	aat Asn	gcc Ala	ggc Gly	cgg Arg	ttc Phe 295	acc Thr	gag Glu	atc Ile	ggg Gly	agt Ser 300	att Ile	tct Ser	cag Gln	gcc Ala	912
ggt Gly 305	cat His	ctc Leu	att Ile	cgc Arg	cac His 310	gga Gly	tac Tyr	gtc Val	ggc Gly	cgt Arg 315	tgg Trp	tgg Trp	aag Lys	ttt Phe	cta Leu 320	960
ccc Pro	cgt Arg	gac Asp	gag Glu 325	tgg Trp	ccg Pro	gcc Ala	gac Asp	gat Asp	tac Tyr 330	cgt Arg	cgt Arg	gac Asp	gga Gly	atc Ile 335	ctc Leu	1008
gac Asp	aag Lys	tgg Trp	gaa Glu 340	gaa Glu	ccc Pro	gtc Val	gga Gly	gac Asp 345	tgc Cys	cga Arg	caa Gln	gaa Glu	ctc Leu 350	gtc Val	ttc Phe	1056
atc Ile	ggc Gly	caa Gln 355	gcc Ala	atc Ile	gac Asp	ccg Pro	tct Ser 360	cga Arg	ctg Leu	cac His	cga Arg	gaa Glu 365	ctc Leu	gac Asp	gcg Ala	1104
tgt Cys	cta Leu 370	ctc Leu	acc Thr	aca Thr	gcc Ala	gag Glu 375	atc Ile	gaa Glu	ctc Leu	ggg Gly	cca Pro 380	gac Asp	gtg Val	tgg Trp	acc Thr	1152

acc tgg agc gac ccc ctg ggc gtc ggc tat acc gac cag acc gtt tga 1200
 Thr Trp Ser Asp Pro Leu Gly Val Gly Tyr Thr Asp Gln Thr Val
 385 390 395

<210> 34
 <211> 399
 <212> PRT
 <213> Rhodococcus erythropolis

<400> 34

Met Val Asp Thr Arg Leu Pro Val Thr Val Leu Ser Gly Phe Leu Gly
 1 5 10 15

Ala Gly Lys Thr Thr Leu Leu Asn Glu Ile Leu Arg Asn Arg Glu Gly
 20 25 30

Arg Arg Val Ala Val Ile Val Asn Asp Met Ser Glu Ile Asn Ile Asp
 35 40 45

Ser Ala Glu Val Glu Arg Glu Ile Ser Leu Ser Arg Ser Glu Glu Lys
 50 55 60

Leu Val Glu Met Thr Asn Gly Cys Ile Cys Cys Thr Leu Arg Glu Asp
 65 70 75 80

Leu Leu Ser Glu Ile Ser Ala Leu Ala Ala Asp Gly Arg Phe Asp Tyr
 85 90 95

Leu Leu Ile Glu Ser Ser Gly Ile Ser Glu Pro Leu Pro Val Ala Glu
 100 105 110

Thr Phe Thr Phe Ile Asp Thr Asp Gly His Ala Leu Ala Asp Val Ala
 115 120 125

Arg Leu Asp Thr Met Val Thr Val Val Asp Gly His Ser Phe Leu Arg
 130 135 140

Asp Tyr Thr Ala Gly Gly Arg Val Glu Ala Asp Ala Pro Glu Asp Glu
 145 150 155 160

Arg Asp Ile Ala Asp Leu Leu Val Asp Gln Ile Glu Phe Ala Asp Val
 165 170 175

Ile Leu Val Ser Lys Ala Asp Leu Val Ser His Gln His Leu Val Glu
 180 185 190

Leu Thr Ala Val Leu Arg Ser Leu Asn Ala Ser Ala Ala Ile Val Pro
 195 200 205

Met Thr Leu Gly Arg Ile Pro Leu Asp Thr Ile Leu Asp Thr Gly Leu
 210 215 220

Phe Ser Leu Glu Lys Ala Ala Gln Ala Pro Gly Trp Leu Gln Glu Leu
 225 230 235 240

Gln Gly Glu His Ile Pro Glu Thr Glu Glu Tyr Gly Ile Ser Ser Val
 245 250 255
 Val Tyr Arg Glu Arg Ala Pro Phe His Pro Gln Arg Leu His Asp Phe
 260 265 270
 Leu Ser Ser Glu Trp Thr Asn Gly Lys Leu Leu Arg Ala Lys Gly Tyr
 275 280 285
 Tyr Trp Asn Ala Gly Arg Phe Thr Glu Ile Gly Ser Ile Ser Gln Ala
 290 295 300
 Gly His Leu Ile Arg His Gly Tyr Val Gly Arg Trp Trp Lys Phe Leu
 305 310 315 320
 Pro Arg Asp Glu Trp Pro Ala Asp Asp Tyr Arg Arg Asp Gly Ile Leu
 325 330 335
 Asp Lys Trp Glu Glu Pro Val Gly Asp Cys Arg Gln Glu Leu Val Phe
 340 345 350
 Ile Gly Gln Ala Ile Asp Pro Ser Arg Leu His Arg Glu Leu Asp Ala
 355 360 365
 Cys Leu Leu Thr Thr Ala Glu Ile Glu Leu Gly Pro Asp Val Trp Thr
 370 375 380
 Thr Trp Ser Asp Pro Leu Gly Val Gly Tyr Thr Asp Gln Thr Val
 385 390 395